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AUTHOR	Grandy, Jerilee
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ABSTRACT

This study analyzed data from a survey conducted in 1987. The sample consisted of 2,136 examinees who took the Graduate Record Examination (GRE) during 1986-87. The purpose was to determine how well the intended field-of-study item in the GRE background questionnaire can be relied on as an indicator of what examinees will actually study in graduate school at the beginning of the next academic year. Fifty-six percent of the sample enrolled in the fall of 1987, with percentages varying somewhat across the intended fields of study. Enrollment rates did not differ significantly between Blacks, Hispanics, and Whites, nor between males and females. Subsequent enrollment was correlated slightly with college grades but not with test scores. Of examinees who specified an intended field of study, 72% were enrolled in exactly the field they had indicated on the background questionnaire. Another 10% were in a specialty field in the same department. Stepwise regression indicated that examinees with low GRE scores were somewhat more likely to change field than examinees with high scores. Test scores, grades, and known demographic variables in the GRE files with not strongly enough associated with changes in field of study to be useful as predictors of change of field. The intended field-of-study item appears to be a useful and reasonably valid indicator of actual field. Four appendixes present the background questionnaire, a definition of fields of study, change codes, and the rationale for the six-point scale of change. (Contains 23 tables and 6 references.) (SLD)

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GRE

RESEARCH

Comparison of Expected with Actual Field of Graduate Study: An Analysis of GRE Survey Data

Jerilee Grandy

September 1990

GRE Board Professional Report No. 87-02P
ETS Research Report 90-17

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Educational Testing Service, Princeton, New Jersey

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Jerilee Grandy

GRE Board Report No. 87-02P

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This report presents the findings of a research project funded by and carried out under the auspices of the Graduate Record Examinations Board.

Educational Testing Service, Princeton, N.J. 08541

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Abstract

This study analyzed data from a survey conducted by Nettles in the fall of 1987. The sample consisted of 2,136 examinees who took the GRE during 1986/87. The purpose of this project was to determine how well the intended field-of-study item in the GRE background questionnaire can be relied upon as an indicator of what examinees will actually study in graduate school at the beginning of the next academic year.

Major findings were as follows:

1. Fifty-six percent of all examinees in the sample became enrolled in graduate or professional school in the fall of 1987. The percentages varied somewhat across intended fields of study. Of those planning to study education, for example, 71% became enrolled in graduate school; of those planning to study computer science, only 49% became enrolled.

2. Enrollment rates did not differ significantly between Black, Hispanic, and predominantly White examinees, nor did it differ between male and female examinees.

3. Subsequent enrollment status was correlated very slightly with college grades but not with test scores.

4. Of those examinees who became enrolled in graduate or professional school and who specified a definite intended field of study, 72% were enrolled in exactly the same field of study they had indicated on the background questionnaire. Another 10% were enrolled in a specialty field within the same department. In total, 82% could be said to have enrolled in the same general field of study.

5. Stepwise regressions suggested that examinees with low GRE scores, particularly quantitative scores, were somewhat more likely to change field than examinees with high scores. With other variables held constant, females were slightly more likely to change field than were males. The strengths of the predictions, however, were extremely small, with multiple correlations of only 0.2.

6. The study concluded that test scores, grades, and known demographic variables in the GRE files are not strongly enough associated with changes in field of study to be useful as predictors of enrollment or of change in field of study.

7. The study concluded that the intended-field-of-study item in the background questionnaire is a useful and reasonably valid indicator of actual field of graduate study.

Background

Talent flow may be viewed as the movement of people having various skills and abilities from one line of endeavor to another. That movement may take place at many times in a person's life. When college students with high math ability choose not to develop their quantitative skills, their special talent flows away from math, science, and engineering fields. When a talented artist leaves a clerical job to become a painter, artistic talent flows into the arts.

Capturing those points in time when a person changes direction, and the flow of talent changes its course, is one of the challenges of educational research. Fortunately, there are some data bases that provide reliable talent flow information. The GRE data base is one such source.

Students who take the GRE provide essential talent flow information because the GRE background questionnaire contains two questions having a direct bearing on talent flow. One asks for the student's major field as an undergraduate, and the other asks for the intended graduate field of study.

A number of research studies have used the field-of-study items in the GRE data base to study talent flow. Each study has rested on the assumption that the intended field of study specified by the examinee is a valid indicator of the subsequent actual field of study. The National Endowment for the Humanities (NEH), for example, funded two projects to study trends in the characteristics of GRE examinees planning graduate work in the humanities (Grandy, 1984a; Grandy & Courtney, 1985). These studies were concerned with possible talent flow away from traditional humanities subjects.

A similar study for the National Science Foundation (NSF) analyzed patterns among science students planning to become teachers (Grandy, 1984b). The purpose was to study talent flow into or out of science teaching. The validity of the conclusions rested on the validity of the field-of-study question.

Normally, from the GRE data base alone, we have no further information indicating whether examinees carried out their intended graduate study. This information is not available because of the difficulty and expense of collecting longitudinal data. But because of a survey recently conducted by Nettles for the GRE Board (GRE No. 86-10), data do exist on a stratified systematic sample of examinees who took the GRE between October 1986 and February 1987 and who were subsequently surveyed in the fall of 1987. Data from that survey, matched with data from the GRE file, provide the special data base for this study.

Purpose

The purpose of this study was to answer the following questions:

1. How representative of the GRE population was the 1987 sample surveyed for the Nettles project, in terms of the distribution of intended fields of study?

2. Based on the 1987 sample, what percentage of GRE examinees became enrolled in graduate or professional school in the fall semester after they took the GRE?

3. Did the distributions of intended fields of study differ across ethnic groups?

4. Did examinees intending to enter some fields of study become enrolled in greater numbers than examinees intending to enter other fields?

5. What percentage of examinees who were "undecided" about their intended fields of study, or who omitted the question, subsequently became enrolled in graduate school? Did those who were undecided differ from those who omitted the question?

6. To what extent was enrollment in graduate or professional school related to other information contained in the GRE file, namely, GRE scores, undergraduate grades, year receiving bachelor's degree, graduate school attendance or nonattendance at examination time, eventual degree objective, gender, and ethnicity?

7. Of those examinees who enrolled in graduate or professional school in the fall of 1987, how many enrolled in fields of study different from those they indicated on the GRE background questionnaire?

8. Did the proportion of examinees who changed their field of study differ across ethnic groups?

9. To what extent could change in field of study be predicted by GRE scores and background variables contained in the GRE file? Were the prediction equations different for each ethnic group? Were they different depending on whether or not the examinees were already graduate students when they took the GRE?

10. What are some examples of the kinds of major field changes examinees made between the time they applied to take the GRE and the time they actually enrolled in graduate or professional school?

11. What do the findings from this study contribute to our understanding of talent flow?

12. Is the GRE background question on intended field of study a valid and useful indicator of actual field of graduate study?

Method

Sampling

Normally it would be quite costly to conduct a survey of GRE examinees after they have had an opportunity to begin graduate school. For such survey results to be useful, it is essential to obtain a high response rate, and as Baird (1982) found in his study, GRE examinees are especially difficult to follow because of their frequent changes of address. For this reason, the Nettles project employed Response Analysis Corporation (RAC) to conduct the survey and to expend the necessary time and effort to attain a response rate of at least 80%.

The Nettles survey focused on financial aid, particularly among minorities. For that reason, minorities were overrepresented in the sample. Three ethnic strata were defined in terms of examinee responses to the self-identification item (Question D) in the background questionnaire:

(1) Black or Afro-American;

(2) Mexican-American or Chicano, Puerto Rican, and Other Hispanic or Latin-American; and

(3) American Indian, Eskimo, or Aleut, Oriental or Asian American, White, and Other.

For simplicity of discussion, this report refers to the strata as (1) Black, (2) Hispanic, and (3) non-Black non-Hispanic, respectively. Stratum 3 is sometimes referred to as "primarily White," a designation that helps to clarify interpretations. All sample members were U. S. citizens.

The sample was selected from the population of 132,272 examinees who took the GRE in October and December 1986 and in February 1987. Data were first ordered by GRE score, then records were selected in accordance with the necessary fixed interval to obtain survey responses from approximately 665 examinees in each of the three strata. Only U.S. citizens were included. The final sample selected to be surveyed contained 865 Black examinees, 833 Hispanic examinees, and 832 non-Black, non-Hispanic examinees.

Because the sampling plan called for approximately equal numbers in each stratum, and because the three ethnic categories do not contain equal numbers in the population, the data were appropriately weighted in the correlational analyses combining all three groups.

Instrumentation

The survey questionnaire was a lengthy instrument that is analyzed in considerable detail in the final report for the Nettles project. This study analyzed only two questions that pertained to examinee status in the fall of 1987.

Item #1 in the survey questionnaire asked whether the respondent was enrolled in graduate and/or professional school. Item #25 was formatted identically to the one regarding intended field of study in the GRE background questionnaire. The stem of the item in the background questionnaire asks for the field in which examinees plan to do their graduate work. In the survey questionnaire, the question asked in what field of study they have actually enrolled. Major field codes identical to those used in the background questionnaire were used in the survey questionnaire. Appendix A shows the GRE background questionnaire and the major field code list as it appears in both instruments.

Upon receipt of the survey questionnaires, a special data base was constructed consisting of the two relevant items of survey data matched with data from the GRE file. Subsequent analyses used the following variables:

From survey questionnaire:

1. Item 1: Enrolled in graduate/professional school or not.
2. Item 25: Field of graduate study.

From GRE file:

3. GRE verbal score (GREV).
4. GRE quantitative score (GREQ).
5. GRE analytical score (GREA).
6. Item H: Year received or planning to receive bachelor's degree.
7. Item J: Eventual degree objective.
8. Item K: Intended field of graduate study.
9. Item N: Year last attended graduate school.
10. Item O: Undergraduate grade average in major field.
11. Item P: Overall grade average for last two years.
12. Sex

Results

Survey response rates

Survey response rates were 82% for Black, 84% for Hispanic, and 88% for non-Black, non-Hispanic examinees. The total sample consisted of 2,136 cases.

Representativeness of the sample

Of primary concern in this study was the extent to which the sample could be said to represent the GRE population in terms of selected fields of study. If, for example, a disproportionately high number of examinees in the sample indicated on the GRE background questionnaire that they planned to study education, the sample could misrepresent the population, particularly if examinees intending to study education tend to change their field of study more or less often than examinees planning to enter other fields of study. Before conducting pertinent data analyses, therefore, the distribution of fields selected by the sample were compared with the distribution of fields selected by the total GRE population as they are published in the GRE Data Summary Report (ETS, 1988).

To compare distributions of fields of study, fields were grouped as in the Data Summary Report and given similar labels. Appendix B defines the 11 broad fields of study used in the following analyses.

The distribution of broad fields of study for Black examinees (Table 1) in the sample was nearly identical to the distribution for the Black population (chi-square = 14.98, df = 13, n.s.). Similarly, among Hispanic examinees (Table 2) the distributions were not significantly different (chi-square = 10.85, df = 13, n.s.).

The only statistically significant difference in the distribution of fields of study was among non-Black, non-Hispanic examinees (chi-square = 340.69, $p < 0.01$). The major contribution to the large chi-square was the number of examinees who omitted the question. For the non-Black, non-Hispanic population, only 2.6% omitted the question, but of the sample, 13.2% omitted it. If we recompute the chi-square only on respondents to the field-of-study question, we find that it is reduced substantially to 32.11 but is still statistically significant. A somewhat higher proportion of the sample planned to study engineering, physical sciences, and biological sciences. Even though the chi-square was statistically significant, the differences in the distributions were quite small. For example, 7.2% of the population and 9.7% of the sample planned to study engineering. For the purposes of this study, such a small difference between the sample and the population is of little consequence.

Comparisons of intended fields of study among the three ethnic groups

Evidence from the GRE Data Summary Reports, as well as from numerous other educational and occupational resources, indicates that some fields of study are especially attractive to minority students while other fields attract White students.

Table 4 confirms these differences in the distributions of fields of study among the three ethnic groups in the sample. The non-Black, non-Hispanic group had a disproportionately high number of examinees who omitted the field-of-study question (chi-square = 193.49, df = 26, $p < 0.01$). However, even among respondents to that question, the three groups chose fields of study somewhat differently (chi-square = 71.69, df = 24, $p < 0.01$).

Chi-square contributions indicated that the applied social sciences--fields such as business, law, social work, and public administration--were selected by a disproportionately high number of Black respondents (15.3%) and a disproportionately low number of predominantly White respondents (8.1%). The humanities, on the other hand, attracted a small proportion of Black respondents (5.8%) and a relatively larger proportion of predominantly White respondents (10.3%). The greatest proportion of Black respondents (19.9%) selected education as a field of study, while only 15.0% of the predominantly White respondents chose education. In general, the Hispanic sample selected fields of study with frequencies about the same as the other two groups combined.

Field of study and subsequent enrollment status

When this study was conducted, the GRE background questionnaire listed 98 specific fields of study. Some fields were selected by a very small number of examinees. In the entire 1986/87 GRE population, for example, only 90 examinees (0.04%) indicated that they planned to study bacteriology (Educational Testing Service, 1988). In the much smaller survey sample, no one chose bacteriology, and many other fields were selected by only one or two examinees. Nevertheless, there was a broad distribution of fields among sample members. Table 5 shows the number of examinees who selected each possible field of study and, for each field, the number who were not enrolled in graduate or professional school in the fall of 1987.

While little meaningful analysis can be done at this level of detail, Table 5 does show that respondents to the survey covered a wide range of academic interests. It also suggests that among the fields attracting sizable numbers of examinees, there was a range from somewhat fewer than half to nearly three-fourths who subequently enrolled in graduate school. If we focus on the top 10 fields and the number who did become enrolled, we find the following:

Intended field of study	No. planning	No. enrolled	Percent enrolled
Education	177	126	71.2
Clinical psychology	100	50	50.0
Electrical engineering	84	49	58.3
Public administration	72	44	61.1
Other psychology	63	29	46.0
Guidance	58	33	56.9
Educational administration	58	35	60.3
Computer science	55	27	49.1
Nursing	47	24	51.1
English	44	23	52.3

The most frequently selected field of study was education, and 71% of the sample planning to study education were enrolled at the time of the survey. Most of the other frequently selected fields showed enrollments from 50-60%.

Because of the small numbers selecting most fields of study, an analysis of the remainder of the sample required that fields of study be grouped. Using the 11 broad fields defined earlier (Appendix B), Table 6 shows, for each broad field of study, the percentage of examinees subsequently enrolled in graduate or professional school. Although the total percentage enrolled was 56%, there was significant variation across fields of study (chi-square = 23.13, df = 10, $p < 0.05$). Among those planning to study education, 65.6% became enrolled, and among those intending to study physical sciences, 64.6% became enrolled. For every broad field of study, the number subsequently enrolled in graduate or professional school was at least 50.0%.

Subsequent enrollment status of examinees who were "undecided" or who omitted the intended major field question

Two special groups of examinees are those who omitted the intended field of study item in the background questionnaire and those who indicated that they were undecided. Rarely do we have much information about examinees in these two categories. For that reason, in research studies of the GRE data base, examinees who mark the "undecided" category are sometimes combined with those who omit a question. In actuality, these two groups of people are quite different.

The following brief table shows, by ethnic group, the percentage of the survey sample who omitted the intended-field-of-study item in the background questionnaire and the percentage who indicated that they were undecided:

Group	Percent Who Omitted	Percent Undecided
Hispanic male	0.9	5.9
Hispanic female	1.6	4.7
Black male	1.8	6.9
Black female	2.1	6.6
Non-Black/Hisp. male	13.4	6.2
Non-Black/Hisp. female	12.9	8.5

It is clear from this table that nearly all examinees who omitted the question were in the non-Black, non-Hispanic sample. Those who were undecided were represented about equally by all ethnic groups and both sexes.

An earlier study of nonresponse bias in the GRE background questionnaire found that examinees who omit questions tend to have different characteristics from those who answer questions (Grandy, 1988). The GRE Data Summary Report shows that examinees who omit the question on intended field of study obtain lower mean scores on all three tests than do examinees who answer the question. On the other hand, those who are undecided about their intended field of study obtain higher mean GRE scores on all three tests than do examinees who mark specific fields.

Until now, there has been no available information on the subsequent educational status of examinees in these two categories of uncertainty. The survey data in this study indicate that 60.5% of those who omitted the intended field of study question became enrolled in graduate or professional school. Of those who marked that they were undecided, only 34.0% were subsequently enrolled. Those who are undecided about their educational futures and those who simply do not answer the question are therefore quite different in their subsequent enrollment behavior.

Variables related to subsequent enrollment status

This study did not attempt to explain why subsequent enrollment was related to intended field of study. Undoubtedly there were many reasons, including whether the examinees actually applied to graduate school, whether they were admitted, whether employment opportunities were more attractive for those holding graduate degrees or undergraduate degrees, and whether examinees were willing to enter different fields of study or different institutions if they were not admitted to the departments or institutions of choice. What this study did do, however, was to examine the relationship of known background information--such as sex, ethnicity, test scores, and grades--to subsequent enrollment.

Table 7 illustrates the extent to which enrollment status differed among groups. While it appears as if a greater proportion of Hispanic males was enrolled in a graduate or professional program than was any of the other groups, the difference was not statistically significant (chi-square = 8.75, df =5, n.s.). This result is perhaps surprising when we consider that differences in the GRE score means among ethnic groups were large and highly significant (Table 8).

To examine further the possible relationships between examinee characteristics and subsequent graduate school enrollment, a correlation matrix was computed among 12 variables. The examinee's race was specified as either Black or not (1 or 0) and either Hispanic or not (1 or 0). Other variables were sex (1 = male and 2 = female), GRE verbal score (GREV), GRE quantitative score (GREQ), and GRE analytical score (GREA). From the background questionnaire, the correlation included year of baccalaureate (item H), degree objective (item J), GPA in major field (item O), and overall GPA the last two years of college (item P). Item N asked for the last year that they were enrolled at least half-time in graduate school. Responses to this item were coded "1" if they were never enrolled, "2" if they were previously enrolled but not enrolled when they took the GRE, and "3" if they were enrolled when they took the GRE. Finally, their current enrollment status was coded "0" if they were not enrolled in graduate or professional school when the survey was conducted and "1" if they were enrolled.

Because the sample contained approximately equal numbers of each ethnic group, the correlations were weighted so statistics based on the total sample would reflect the same ethnic distribution as in the GRE population. The weights were also adjusted for the slightly different sampling fractions used when examinees were selected from each test administration.

Table 9 shows the weighted correlation matrix for the complete sample. From this matrix we find that enrollment showed only a slight correlation with any variable. The only statistically significant correlations were with undergraduate GPA during the last two years of college ($r = 0.15$), undergraduate GPA in major field ($r = 0.11$), and whether or not they were enrolled in graduate school when they took the GRE ($r = 0.09$). Not surprisingly, examinees who were already enrolled in graduate school when they took the GRE were more likely to be enrolled in the fall of 1987. The correlation matrix was therefore recomputed for just those examinees who had never attended graduate school.

Table 10 shows that enrollment status for this group was correlated most highly with overall GPA the last two years of college ($r = 0.19$). It was also correlated significantly with GPA in major ($r = 0.12$) and very slightly with sex ($r = 0.09$). Although these correlations are statistically significant, it is important to observe that they are quite small.

Among those examinees who were already enrolled in graduate school when they took the GRE, 71% were still enrolled when the survey was conducted. The pattern of correlations was quite different for these examinees than for those never enrolled, however, and it is not easily explained (Table 11). The examinees most likely still to be enrolled when the survey was conducted had slightly lower test scores and grades than those who were not still enrolled. Unless the GRE was being used as an exit exam from graduate school or an entrance exam into the job market, it is difficult to understand why the lower achievers would remain in graduate school and the better students would leave. Without having further information about these students and without knowing why graduate students might be taking the GRE in the first place, this pattern is impossible to explain.

Correlations were also computed separately for each ethnic group to see

if the variables associated with enrollment status might be somewhat different for each group. Table 12 shows the correlation matrix for the Black sample. Most of the variables are slightly correlated, and in the expected direction, with enrollment. Again, the correlations are signficant but very small.

Table 13 shows the same matrix for the Hispanic sample. The correlations were consistent with those computed for the Black sample. Finally, Table 14 shows the matrix for predominantly White examinees. Again, grades show a small positive correlation, and test scores have essentially no association with enrollment.

Changes in field of study

While it is important to know how many GRE examinees subsequently enroll in graduate or professional school, the main purpose of this study was to estimate how many examinees enroll in fields of study different from those in which they intended to enroll when they completed the background questionnaire.

The analyses in this section are based on the 1,194 examinees who satisfied the following conditions:

(1) They specified a definite field of study in the GRE background questionnaire, that is, they did not mark "undecided," nor did they omit the question.

(2) They were enrolled in graduate or professional school when the survey was administered, that is, in the fall semester after taking the GRE.

(3) They specified definite fields of study in the survey questionnaire.

It is quite possible that a greater number of examinees were enrolled at a later time. It is also possible that some examinees enrolled in the fall and later dropped out or changed fields of study. These analyses, therefore, reflect enrollment status and field of study at a specific moment in the student's academic career. The baseline for computing all percentages in this section was the 1,194 examinees meeting the three conditions stated above.

Important to these analyses was the development of a scale to measure "change" in field of study. Defining the degree of change was clearly not a trivial exercise. An examinee who planned to study microbiology and subsequently enrolled in microbiology certainly showed no change. Examinees in this category were given a score of "1" indicating no change whatsoever. They constituted 71.6% of the enrolled sample.

Table 15 lists each intended major field, the number of examinees planning to enter each field, and the number and percentage that entered each field. While most of these figures cannot be interpreted statistically because of the small number of examinees choosing each field, the numbers are presented for the reader who wishes to see the figures for specific fields or combinations of fields.

An additional 10.1% of the sample enrolled in fields so similar that they

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hardly deserved to be called changes. These examinees were given a change score of "2." For example, a change from "clinical psychology" to "other psychology" or a change from "archaeology" to "anthropology" was scored a "2." If the change occurred from one departmental specialty to another specialty, or if the field could be included within one department of one institution and a different department of another institution, the change score was "2." Archaeology is an example of a field that may or may not lie within the anthropology department.

We expected that most changes in field of study would be difficult to scale and would require the judgments of experts, committee reviews, and interrater reliability estimates. In examining the data, however, we found that the scaling of most changes was not especially difficult. Furthermore, because so few people changed field, making fine distinctions among them was unnecessary. However, before we knew that so few examinees changed fields, we defined change scores on a 6-point scale. Appendix D describes the 6-point scale devised to measure degree of change. The distribution of change scores for the entire sample is shown in Table 16.

From the viewpoint of research on talent flow, we would not regard a change from social psychology to "other" psychology, for example, to constitute a flow of talent into a different field. For most of the distributional analyses, therefore, examinees were classified as having remained in the same field if their change score was "1" or "2." They constituted 81.7% of the enrolled sample. All others were classified as changed, even though the change might have been only from archaeology to art history, or from international relations to political science. Correlational analyses used the 6-point scale.

Variables related to change in field of study

Table 17 shows that there were some significant differences in the proportions of examinees who changed fields of study among the six sex-by-ethnicity subgroups (chi-square =15.29, df = 5, $p < 0.02$). A disproportionately large number of Black male examinees (29.7%) enrolled in fields of study different from those they indicated in the background questionnaire. The proportion of predominantly White male examinees who changed fields was a low 10.3%. The other four groups were very near the average of 18.3%.

To explain these differences in change of field among the sample groups, a correlation matrix was computed (Table 18). While all the correlations were small, changing field of study was correlated signficantly with sex (being female), low verbal score, and low quantitative score.

Using a selected subset of variables, a stepwise regression was computed to predict degree of change in field of study. Sex and GREQ contributed about equally to the prediction, and GREV contributed slightly less. The following table shows the standardized regression weights:

Independent Variable	Std. Reg. Weight
GRE quantitative score	-0.10
Sex (female)	0.09
GRE verbal score	-0.08

The multiple correlation was only 0.19. This solution suggests that with all else being equal, examinees are more likely to enroll in fields different from those they planned to enter if their GRE scores are low and if they are female. The strength of the relationship, however, is very weak, with less than 4% of the variance being explained by these three variables.

It seemed likely that the prediction might be stronger among examinees who had never been to graduate school. The correlation matrix was recomputed on this subsample, and the results are shown in Table 19. As expected, the correlations are somewhat higher. In fact, the correlation between change score and GREQ was -0.21.

In a similar stepwise regression, results were as follows:

Independent Variable	Std. Reg. Weight
GRE quantitative score	-0.16
Sex (female)	0.06
GRE verbal score	-0.06

Despite the relatively larger zero-order correlation with GREQ, the multiple correlation was still only 0.22. While the total prediction was not improved, it appears that among the variables measured, low quantitative scores may have the greatest influence on major field changes.

To see whether there were different correlations for examinees who were already graduate students when they took the GRE, we computed a correlation matrix and stepwise regression for that subgroup. Table 20 shows that the highest correlate of major field change was sex ($r = 0.21$).

From the stepwise regression, we see that changing field of study was slightly associated with being female and, to a very small degree, with having a high overall GPA and being non-Black.

Independent Variable	Std. Reg. Weight
Sex (female)	0.21
Overall GPA	0.07
Race (Black)	-0.05

The multiple correlation was 0.23. Again, the regression shows a statistically significant prediction, but a very small one.

The previous regressions used ethnic identity as an independent variable. If the other variables predict change of field differently for each ethnic group, these analyses cannot show those differences. Thus, the analyses were done again for each ethnic group separately.

Table 21 shows the correlation matrix for Black examinees. None of the variables was highly correlated with change, and the stepwise regression predicted less than 2% of the variance. Similarly, for Hispanic examinees, correlations with change in field of study were extremely small (Table 22). In the stepwise regression, only 1% of the variance could be explained.

The non-Black, non-Hispanic group was essentially the only ethnic group for whom even a small association could be found between change in field of study and the known variables. Table 23 shows the correlation matrix. Results of the regression were as follows:

Independent Variable	Std. Reg. Weight
GREQ	-0.09
Sex (female)	0.12
GREV	-0.08
GPA in major	-0.05

The multiple correlation was 0.22. These results resemble the results obtained for the total sample--not surprisingly, because the total sample was weighted most heavily by this group.

We must conclude from all our regression analyses that it is virtually impossible to predict, from the data in the background questionnaire, who will change field of study. We have seen some association with quantitative scores, and we have found that females are somewhat more likely than males to change. But the strength of the associations is very slight, with less than 5% of the variance being explained by all the measured variables combined.

A view of the data from a different perspective

The analyses reported thus far have been statistical, and the reader may ask what kinds of major field changes examinees actually do make. It would be impractical and cumbersome to reproduce in this report the entire matrix showing combinations of major field changes. What is informative is to examine some popular fields of study to see how the flow of talent into or out of those fields became diverted between the time examinees took the GRE and the time they became enrolled in graduate or professional school. In this section we will examine the changes made by examinees planning to enter two fields--engineering and education--to see in what fields they subsequently enrolled and in what numbers.

On the background questionnaire, a total of 167 examinees indicated that

they planned to enter some branch of engineering. The following chart shows the distribution of these examinees by sex and ethnic group, and the numbers flowing into engineering or into some other field. For simplicity, the non-Black, non-Hispanic group is designated as "Other."

Examinees planning to enter engineering		Subsequent field of enrollment	
Group	N	Field	N
Black male	28	Engineering	13
		Physics	1
		Not enrolled	14
Black female	17	Engineering	9
		Computer science	1
		Not enrolled	7
Hispanic male	56	Engineering	31
		Architecture	2
		Business	2
		Economics	1
		Computer science	1
		"Other" phys. science	1
		Unlisted field	1
		Not enrolled	17
Hispanic female	5	Engineering	1
		Computer science	1
		Not enrolled	3
Other male	54	Engineering	27
		Dentistry	1
		Not enrolled	26
Other female	7	Engineering	6
		Not enrolled	1

Considering that these sample sizes are too small to provide a basis for generalization, it is perhaps surprising is that they are so consistent with the statistics. The Hispanic male group appears to be quite different from the others. They have the highest enrollment rate (consistent with the sample statistics, Table 7), and they appear to have achieved that rate by enrolling in different fields of study rather than by not enrolling at all. Because of the very small sample size and the need to safeguard the anonymity of respondents, the GRE scores for these examinees are not included in the analyses. It would be consistent with the statistical analyses, however, to infer that the Hispanic males may have had lower test scores than their predominantly White colleagues, and may have enrolled in different fields of study if they were not admitted into engineering.

Another observation is that very few female examinees planned to study

engineering, but of the 29 who did, 16 (55%) were subsequently enrolled in engineering. Of the 138 male examinees who planned to enter engineering, 87 (63%) became enrolled. Gender differences in enrollment rates in engineering, therefore, were not very great. Even though the sample was small, it seems likely that the smaller number of women than men enrolled in engineering can be attributed, for the most part, to gender differences in the intention to study engineering.

The reader should note that not all examinees who enrolled in engineering had originally intended to do so. Some had planned to study computer science, geology, or business. Ten had not specified intended fields.

A second large field examined in some detail was education. Only the single "education" category was included so we could track examinees who enrolled in closely related areas that might have been included with education, such as education administration. Of the 176 examinees who planned to study education, 146 (83%) were female. The following chart shows the actual fields of study in which examinees enrolled.

Examinees planning to enter education		Subsequent field of enrollment	
Group	N	Field	N
Black male	9	Education	5
		Communications	1
		Agriculture	1
		Not enrolled	2
Black female	58	Education	35
		Educational psychology	1
		Guidance	1
		Educational admin.	1
		History	1
		Unlisted field	1
		Not enrolled	18
Hispanic male	11	Education	4
		Guidance	1
		Educational admin.	1
		Not enrolled	5
Hispanic female	47	Education	26
		Educational admin.	3
		Spanish	1
		Economics	1
		Nursing	1
		Business	1
		Omitted question	1
		Not enrolled	13

Other male	10	Education	4
		Educational psychology	1
		Educational admin.	1
		Not enrolled	4
Other female	41	Education	26
		Guidance	2
		Educational admin.	2
		Public administration	1
		English	1
		Not enrolled	9

While it is sometimes believed that education is the default option when an applicant fails to be admitted to the field of choice, these data suggest that this may not always the case, especially among the minority groups. Some examinees who planned to study education became enrolled in fields such as nursing, economics, and Spanish, though the majority enrolled in education or one of its specialties.

The highest rates of "nonenrollment" were among Hispanic and predominantly White male examinees (46% and 40%, respectively). Of course, the number of male examinees planning to study education was quite small, and the relatively low subsequent enrollment rates resulted in relatively few male examinees being enrolled in education.

Not all examinees enrolled in education had planned to do so originally. Some of the fields they had intended to study were clinical psychology, anthropology, ecology, speech pathology, biology, math, statistics, architecture, business, and linguistics.

What these analyses have attempted to do is to focus on individuals and the changes they made in their enrollment decisions after they took the GRE. The data are not intended to be accurate representations of the entire GRE population; their numbers are too small for that purpose. The charts were presented so the reader could have a sense of the dispersion of field changes and could see some specific differences among subgroups.

Implications for studies of talent flow

This study attempted to find variables in the GRE data base that could be associated with subsequent enrollment in graduate or professional school. Furthermore, we attempted to predict from the GRE variables which students would be most likely to enroll in fields of study different from those initially planned. Results suggested that there is only the slightest association between the variables in the GRE file and the outcomes of interest. With all else being equal, the following patterns seem to hold to a very small degree:

1. Examinees who have relatively high undergraduate grades are somewhat more likely to become enrolled in graduate school than those with lower grades.

2. Examinees who score relatively low on the GRE, especially the GREQ, are somewhat more likely to become enrolled in different fields of study than originally planned;

3. A slightly larger proportion of females than males enroll in fields of study different from those originally planned.

These are broad generalizations with many exceptions, and it would be misleading to conclude that we can predict who will attend graduate school or who will enroll in their preferred fields of study based on information from the GRE data base. Nevertheless, the three summary statements above may help to explain observations made in future studies of talent flow.

We may speculate that grades play a role in subsequent enrollment because grades reflect not only academic achievement but a motivational component of education. Low grades combined with low test scores may indicate generally low academic ability. Low grades combined with high test scores may indicate lack of challenge or lack of commitment to academic pursuits. The uncommitted student may decide that graduate school will be too much work to warrant the effort.

We may further speculate that examinees with high grades show commitment to achievement as well as academic discipline. If those examinees fail to score high enough on the GRE to be admitted into their preferred programs, they may have sufficient interest in academic pursuits to enter different programs.

Implications for the validity of the intended-field-of-study question

While the speculations posed above may be useful in attempting to explain patterns of talent flow, they are based on very weak statistical associations. The multiple correlations were quite low, the highest being 0.22. If we review the statistics that might have implications for the validity of the intended-field-of-study item, we see that the percentage of examinees subsequently enrolled in graduate or professional school varied from 50% to 65% across the broad major fields, and, of those who enrolled, about 82% enrolled in the fields they specified or in nearly identical fields.

It is perhaps unfortunate that the GRE background questionnaire prior to 1988 did not ask whether the examinee planned to apply to graduate school. Undoubtedly, one of the reasons only 56% of the sample became enrolled in graduate school was that people take the GRE for many reasons, and not everyone applies or intends to apply to graduate school. If we conduct followup studies of examinees taking the GRE after 1987, we will be able to check the validity of the new question on graduate school intentions and to re-validate the intended-field-of-study item.

It certainly seems clear from our research that the intended-field-of-study question prior to 1988 provides highly useful information from which we can estimate the subsequent fields of study of examinees. For very small subgoups, such as those planning to enter specific fields with low selection rates, predictions of subsequent enrollment in those fields may be in considerable error. But for broad major fields, special combinations of fields, and the larger individual ones, such as education and engineering, the intended-major-field question should provide a useful approximation to subsequent major field enrollment patterns.

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Table 1

Distribution of Broad Fields of Study
Selected by Examinees on the GRE Background Questionnaire

	Black Examinees			
	Population (N = 9,324)		Sample (N = 706)	
	N	%	N	%
Arts	174	1.9	17	2.4
Humanities	454	4.9	40	5.7
Soc/Behav Sciences	1,699	18.2	106	15.0
Education	1,823	19.6	138	19.6
Biological Sciences	310	3.3	25	3.5
Applied Biology	102	1.1	5	0.7
Health	1,014	10.9	83	11.8
Math Sciences	431	4.6	32	4.5
Physical Science	149	1.6	16	2.3
Engineering	486	5.2	45	6.4
Unlisted	219	2.4	15	2.1
Undecided	805	8.6	48	6.8
Omitted	179	1.9	14	2.0

Chi-square = 14.98 df = 13 n.s.

Table 2

Distribution of Broad Fields of Study
Selected by Examinees on the GRE Background Questionnaire

	Hispanic Examinees			
	Population (N = 5,789)		Sample (N = 702)	
	N	%	N	%
Arts	114	2.0	12	1.7
Humanities	499	8.6	67	9.5
Soc/Behav Sciences	1,048	18.1	131	18.7
Applied Soc Sciences	679	11.7	79	11.2
Education	974	16.8	113	16.1
Biological Sciences	380	6.6	48	6.8
Applied Biology	109	1.9	9	1.3
Health	480	8.3	57	8.1
Math Sciences	236	4.1	32	4.6
Physical Science	178	3.1	29	4.1
Engineering	506	8.7	61	8.7
Unlisted	106	1.8	18	2.6
Undecided	401	6.9	37	5.3
Omitted	79	1.4	9	1.3

Chi-square = 10.85 df = 13 n.s.

Table 3

Distribution of Broad Fields of Study
Selected by Examinees on the GRE Background Questionnaire

	Non-Black, Non-Hispanic Examinees			
	Population (N = 160,463)		Sample (N = 728)	
	N	%	N	%
Arts	4,126	2.6	12	1.6
Humanities	15,039	9.4	65	8.9
Soc/Behav Sciences	26,365	16.4	114	15.7
Applied Soc Sciences	14,090	8.8	51	7.0
Education	25,575	15.9	95	13.0
Biological Sciences	8,690	5.4	48	6.6
Applied Biology	3,712	2.3	6	0.8
Health	15,889	9.9	64	8.8
Math Sciences	7,960	5.0	18	2.5
Physical Science	5,698	3.6	34	4.7
Engineering	11,326	7.1	61	8.4
Unlisted	3,248	2.0	8	1.1
Undecided	14,546	9.1	56	7.7
Omitted	4,199	2.6	96	13.2

Chi-square = 340.69 df = 13 $p < 0.01$

Chi-square for respondents only = 32.11 df = 13 $p < 0.01$

Table 4

Comparison of the Distribution of Major Field Selections among the Three Samples

	Black	Hisp.	Other	Total
Arts	17	12	12	41
Humanities	40	67	65	172
Soc/Behav Sciences	122	131	114	367
Applied Soc Sciences	106	79	51	236
Education	138	113	95	346
Biological Sciences	25	48	48	121
Applied Biology	5	9	6	20
Health	83	57	64	204
Math Sciences	32	32	18	82
Physical Science	16	29	34	79
Engineering	45	61	61	167
Unlisted	15	18	8	41
Undecided	48	37	56	141
Omitted	14	9	96	119
Total	706	702	728	2136

Chi-square = 193.49 df = 26 $p < 0.01$

Chi-square for respondents only = 71.69 df = 24 $p < 0.01$

Table 5

Number of Examinees Selecting Each Field of Study on the Background Questionnaire, and Number and Percentage Who Were Not Enrolled in Graduate or Professional School at the Time of the Survey

Planned Field of Study (From GRE Background Questionnaire)	Number Planning That Field	Not Enrolled in Grad/Prof School	
		N	%
Drama	7	4	57.1
Music	22	8	36.4
Fine Arts	12	6	50.0
English	44	21	47.7
Comparative literature	3	2	66.7
Linguistics	7	3	42.7
Spanish	18	2	11.1
French	5	0	0.0
German	1	1	100.0
Classical languages	1	0	0.0
Asian lang & lit	1	1	100.0
Russian/Slavic lang & lit	3	0	0.0
Other foreign languages	1	0	0.0
Speech	7	5	71.4
Architecture	24	13	54.2
Art history	6	1	16.7
Archaeology	4	2	50.0
Religion	32	9	28.1
Philosophy	8	5	62.5
Other humanities	7	2	28.6
Exper/Devel Psychology	13	6	46.2
Clinical Psychology	100	50	50.0
Social psychology	13	7	53.8
Other psychology	63	34	54.0
History	16	4	25.0
Economics	26	14	53.8
Political science/govt	28	15	53.6
International relations	34	17	50.0
American studies	1	1	100.0
Anthropology	14	6	42.9
Sociology	22	8	36.4
Urban development	6	3	50.0
Geography	4	0	0.0
Other social sciences	27	11	40.7
Mathematics	15	5	33.3
Applied mathematics	4	0	0.0
Statistics	8	5	62.5
Computer science	55	28	50.9
Physics	14	7	50.0
Chemistry	36	11	30.6

Table 5 (continued)

Planned Field of Study (From GRE Background Questionnaire)	Number Planning That Field	Not Enrolled in Grad/Prof School	
		N	%
Geology	16	5	31.3
Astronomy	2	0	0.0
Oceanography	4	2	50.0
Other physical sciences	7	3	42.9
Electrical engineering	84	35	41.7
Mechanical engineering	26	11	42.3
Civil engineering	18	5	27.8
Chemical engineering	12	4	33.3
Industrial engineering	8	4	50.0
Aeronautical engineering	3	1	33.3
Metallurgy	0	0	0.0
Other engineering	16	8	50.0
Biology	31	13	41.9
Botany	5	1	20.0
Zoology	5	0	0.0
Molecular/cellular bio	7	4	57.1
Microbiology	23	15	65.2
Genetics	5	4	80.0
Biochemistry	17	7	41.2
Physiology	4	0	0.0
Biophysics	0	0	0.0
Environ science/ecology	11	5	45.5
Other biological sciences	13	7	53.8
Anatomy	2	2	100.0
Biomedical science	10	5	50.0
Medicine	9	4	44.4
Dentistry	3	2	66.7
Nursing	47	23	48.9
Pharmacology	6	4	66.7
Pathology	4	3	75.0
Bacteriology	0	0	0.0
Pharmacy	8	2	25.0
Nutrition	10	3	30.0
Speech/lang pathology	29	6	20.7
Audiology	5	1	20.0
Occupational therapy	0	0	0.0
Physical therapy	16	9	56.3
Public health	40	16	40.0
Hospital/health admin	15	8	53.3
Veterinary medicine	6	3	50.0
Forestry	1	0	0.0
Agriculture	11	5	45.5
Entomology	2	0	0.0
Home economics	0	0	0.0
Education	177	51	28.8
Ed. psychology	31	15	48.4

Table 5 (continued)

Planned Field of Study (From GRE Background Questionnaire)	Number Planning That Field	Not Enrolled in Grad/Prof School	
		N	%
Guidance	58	25	43.1
Ed. administration	58	23	39.7
Physical education	22	5	22.7
Public administration	72	28	38.9
Business	38	22	57.9
Law	9	6	66.7
Industrial relations	11	5	45.5
Communications	34	20	58.8
Journalism	12	7	58.3
Library science	21	7	33.3
Social work	39	23	59.0
Unlisted	41	15	36.6
Undecided	141	93	66.0
Omit	119	47	39.5

Table 6

Number and Percentage of Examinees Subsequently Enrolled in Graduate School for Each Intended Field of Study

Intended Field of Study	Number Planning	Number Enrolled	Percent Enrolled
Arts	41	23	56.1
Humanities	172	105	61.0
Soc/Behav Sciences	367	191	52.0
Applied Soc Sciences	236	118	50.0
Education	346	227	65.6
Biological Sciences	121	65	53.7
Applied Biology	18	10	55.6
Health	204	116	56.9
Math Sciences	82	44	53.7
Physical Science	79	51	64.6
Engineering	167	99	59.3
Unlisted	41	26	63.4
Undecided	141	48	34.0
Omitted	119	72	60.5
Total	2134	1195	56.0

Chi-square (among 11 identified fields of study only) = 23.13

df = 10, $p < 0.05$

Table 7

Comparison of Enrollment Status among Groups

Group	Enrolled N	Enrolled (%)	Not enrolled N	Not enrolled (%)	Total
Black male	113	(51.8)	105	(48.2)	218
Black female	257	(53.2)	226	(46.8)	483
Hispanic male	197	(61.2)	125	(38.8)	322
Hispanic female	213	(56.1)	167	(43.9)	380
Non-Black/Hisp. male	174	(54.0)	148	(46.0)	322
Non-Black/Hisp. female	238	(59.2)	164	(40.8)	402
Total	1,192	(56.0)	935	(44.0)	2,127

Chi-square = 8.75 df = 5 n.s.

Table 8

Comparisons of Mean GRE Scores across Ethnic Groups

GRE Verbal Scores

Sampling Group	N	Mean	S.D.
1. Black	658	394	100
2. Hispanic	669	446	111
3. Non-Black, non-Hispanic	640	517	112

$t_{12} = 8.99$ $t_{13} = 20.77$ $t_{23} = 11.41$

All $p < 0.01$

GRE Quantitative Scores

Sampling Group	N	Mean	S.D.
1. Black	658	405	121
2. Hispanic	669	483	134
3. Non-Black, non-Hispanic	640	554	129

$t_{12} = 11.19$ $t_{13} = 21.41$ $t_{23} = 9.62$

All $p < 0.01$

GRE Analytical Scores

Sampling Group	N	Mean	S.D.
1. Black	658	415	111
2. Hispanic	669	471	126
3. Non-Black, non-Hispanic	640	559	116

$t_{12} = 8.49$ $t_{13} = 22.67$ $t_{23} = 13.10$

All $p < 0.01$

Table 9

Weighted Correlations with Enrollment Status *

Total Sample
(N = 2,136)

	RACE H	RACE B	SEX	VERBAL	QUANT	ANALYTIC
RACE H	1.0000	-0.0381	-0.0075	-0.0998	-0.0796	-0.1134
RACE B	-0.0381	1.0000	0.0554	-0.2180	-0.2282	-0.2386
SEX	-0.0075	0.0554	1.0000	-0.0633	-0.3115	-0.1227
VERBAL	-0.0998	-0.2180	-0.0633	1.0000	0.5336	0.6249
QUANT	-0.0796	-0.2282	-0.3115	0.5336	1.0000	0.7448
ANALYTIC	-0.1134	-0.2386	-0.1227	0.6249	0.7448	1.0000
BQ#H	0.0170	-0.0262	-0.0731	-0.0846	0.2095	0.2257
BQ#J	0.0203	-0.0015	-0.0192	0.2083	0.1466	0.1533
BQ#NX	0.0098	0.0472	-0.0007	-0.0682	-0.1581	-0.1819
BQ#O	-0.0265	-0.1326	0.1052	0.2592	0.1993	0.2155
BQ#P	-0.0442	-0.1457	0.1014	0.2270	0.1614	0.1850
ENROLL	0.0063	-0.0170	0.0475	0.0449	0.0394	0.0132

	BQ#H	BQ#J	BQ#NX	BQ#O	BQ#P	ENROLL
RACE H	0.0170	0.0203	0.0098	-0.0265	-0.0442	0.0063
RACE B	-0.0262	-0.0015	0.0472	-0.1326	-0.1457	-0.0170
SEX	-0.0731	-0.0192	-0.0007	0.1052	0.1014	0.0475
VERBAL	-0.0846	0.2083	-0.0682	0.2592	0.2270	0.0449
QUANT	0.2095	0.1466	-0.1581	0.1993	0.1614	0.0394
ANALYTIC	0.2257	0.1533	-0.1819	0.2155	0.1850	0.0132
BQ#H	1.0000	0.0008	-0.3597	0.0798	0.0210	-0.0396
BQ#J	0.0008	1.0000	0.0859	0.2160	0.2660	0.0326
BQ#NX	-0.3597	0.0859	1.0000	-0.0224	0.0465	0.0889
BQ#O	0.0798	0.2160	-0.0224	1.0000	0.6833	0.1103
BQ#P	0.0210	0.2660	0.0465	0.6833	1.0000	0.1475
ENROLL	-0.0396	0.0326	0.0889	0.1103	0.1475	1.0000

Definition of variables:

Race H: 1 = Hispanic 0 = not Hispanic
Race B: 1 = Black 0 = not Black
Sex: 1 = male 2 = female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 = never 2 = before 1986 3 = currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 = yes 0 = no

*
Correlations significant to no more than two decimal places.

Table 10

Weighted Correlations with Enrollment Status *

Sample Who Were Never Enrolled in Graduate School

	RACE H	RACE B	SEX	VERBAL	QUANT	ANALYTIC
RACE H	1.0000	-0.0393	-0.0081	-0.0960	-0.0809	-0.1176
RACE B	-0.0393	1.0000	0.0565	-0.2186	-0.2358	-0.2417
SEX	-0.0081	0.0565	1.0000	-0.0410	-0.3600	-0.1213
VERBAL	-0.0960	-0.2186	-0.0410	1.0000	0.4738	0.6094
QUANT	-0.0809	-0.2358	-0.3600	0.4738	1.0000	0.7091
ANALYTIC	-0.1176	-0.2417	-0.1213	0.6094	0.7091	1.0000
BQ#H	0.0137	0.0040	-0.1036	-0.0981	0.1527	0.1828
BQ#J	0.0210	-0.0119	-0.0185	0.1933	0.1738	0.1919
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	-0.0268	-0.1368	0.0827	0.2588	0.1910	0.2038
BQ#P	-0.0459	-0.1566	0.1030	0.2361	0.1746	0.1856
ENROLL	0.0033	-0.0330	0.0933	0.0595	0.0439	0.0363

	BQ#H	BQ#J	BQ#NX	BQ#O	BQ#P	ENROLL
RACE H	0.0137	0.0210	0.0000	-0.0268	-0.0459	0.0033
RACE B	0.0040	-0.0119	0.0000	-0.1368	-0.1566	-0.0330
SEX	-0.1036	-0.0185	0.0000	0.0827	0.1030	0.0933
VERBAL	-0.0981	0.1933	0.0000	0.2588	0.2361	0.0595
QUANT	0.1527	0.1738	0.0000	0.1910	0.1746	0.0439
ANALYTIC	0.1828	0.1919	0.0000	0.2038	0.1856	0.0363
BQ#H	1.0000	0.1768	0.0000	0.1060	0.0914	-0.0687
BQ#J	0.1768	1.0000	0.0000	0.2750	0.2541	0.0432
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	0.1060	0.2750	0.0000	1.0000	0.7208	0.1250
BQ#P	0.0914	0.2541	0.0000	0.7208	1.0000	0.1930
ENROLL	-0.0687	0.0432	0.0000	0.1250	0.1930	1.0000

Definition of variables:

Race H: 1 - Hispanic 0 - not Hispanic
Race B: 1 - Black 0 - not Black
Sex: 1 - male 2 - female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 - never 2 - before 1986 3 - currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 - yes 0 - no

*
Correlations significant to no more than two decimal places.

Table 11

Weighted Correlations with Enrollment Status*

Sample Enrolled in Graduate School When They Took the GRE

	RACE H	RACE B	SEX	VERBAL	QUANT	ANALYTIC
RACE H	1.0000	-0.0541	-0.0047	-0.1239	-0.1064	-0.1289
RACE B	-0.0541	1.0000	0.0809	-0.2654	-0.2795	-0.2854
SEX	-0.0047	0.0809	1.0000	-0.1712	-0.2089	-0.1004
VERBAL	-0.1239	-0.2654	-0.1712	1.0000	0.6551	0.6766
QUANT	-0.1064	-0.2795	-0.2089	0.6551	1.0000	0.7764
ANALYTIC	-0.1289	-0.2854	-0.1004	0.6766	0.7764	1.0000
BQ#H	0.0433	-0.0864	0.0009	0.0482	0.3333	0.2686
BQ#J	0.0426	0.0200	0.0029	0.3417	0.2512	0.1623
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	-0.0225	-0.1388	0.1711	0.2323	0.1703	0.1542
BQ#P	-0.0181	-0.1199	0.0179	0.1336	0.1154	0.1838
ENROLL	0.0107	-0.0014	0.0770	-0.0495	-0.0566	-0.0919

	BQ#H	BQ#J	BQ#NX	BQ#O	BQ#P	ENROLL
RACE H	0.0433	0.0426	0.0000	-0.0225	-0.0181	0.0107
RACE B	-0.0864	0.0200	0.0000	-0.1388	-0.1199	-0.0014
SEX	0.0009	0.0029	0.0000	0.1711	0.0179	0.0770
VERBAL	0.0482	0.3417	0.0000	0.2323	0.1336	-0.0495
QUANT	0.3333	0.2512	0.0000	0.1703	0.1154	-0.0566
ANALYTIC	0.2686	0.1623	0.0000	0.1542	0.1838	-0.0919
BQ#H	1.0000	0.0190	0.0000	-0.0175	0.0043	-0.0408
BQ#J	0.0190	1.0000	0.0000	0.1808	0.2768	-0.0693
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	-0.0175	0.1808	0.0000	1.0000	0.6105	0.0253
BQ#P	0.0043	0.2768	0.0000	0.6105	1.0000	-0.1045
ENROLL	-0.0408	-0.0693	0.0000	0.0253	-0.1045	1.0000

Definition of variables:

Race H: 1 = Hispanic 0 = not Hispanic
Race B: 1 = Black 0 = not Black
Sex: 1 = male 2 = female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 = never 2 = before 1986 3 = currently
BQ#O: GPA in major
BQ#P: Cverall GPA last two years
Enroll: Enrolled at the time of the survey 1 = yes 0 = no

* Correlations significant to no more than two decimal places.

Table 12

Weighted Correlations with Enrollment Status *

Black Examinees Only

	SEX	VERBAL	QUANT	ANALYTIC	BQ#H
SEX	1.0000	-0.0619	-0.2309	-0.0983	-0.0110
VERBAL	-0.0619	1.0000	0.5708	0.6212	0.0241
QUANT	-0.2309	0.5708	1.0000	0.7282	0.2187
ANALYTIC	-0.0983	0.6212	0.7282	1.0000	0.2277
BQ#H	-0.0110	0.0241	0.2187	0.2277	1.0000
BQ#J	-0.0399	0.2493	0.0823	0.1348	-0.0887
BQ#NX	0.0048	-0.0988	-0.1752	-0.2006	-0.4597
BQ#O	0.0857	0.1372	0.1323	0.1255	0.0592
BQ#P	0.0485	0.0775	0.0980	0.0668	-0.0479
ENROLL	0.0157	0.0847	0.1120	0.0806	-0.0831

	BQ#J	BQ#NX	BQ#O	BQ#P	ENROLL
SEX	-0.0399	0.0048	0.0857	0.0485	0.0157
VERBAL	0.2493	-0.0988	0.1372	0.0775	0.0847
QUANT	0.0823	-0.1752	0.1323	0.0980	0.1120
ANALYTIC	0.1348	-0.2006	0.1255	0.0668	0.0806
BQ#H	-0.0887	-0.4597	0.0592	-0.0479	-0.0831
BQ#J	1.0000	0.1345	0.1589	0.2273	-0.0055
BQ#NX	0.1345	1.0000	0.0343	0.1511	0.1843
BQ#O	0.1589	0.0343	1.0000	0.6319	0.1395
BQ#P	0.2273	0.1511	0.6319	1.0000	0.1369
ENROLL	-0.0055	0.1843	0.1395	0.1369	1.0000

Definition of variables:

Sex: 1 = male 2 = female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 = never 2 = before 1986 3 = currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 = yes 0 = no

*
Correlations significant to no more than two decimal places.

Table 13

Weighted Correlations with Enrollment Status*

Hispanic Examinees Only

	SEX	VERBAL	QUANT	ANALYTIC	BQ#H
SEX	1.0000	-0.1098	-0.3483	-0.1612	-0.0992
VERBAL	-0.1098	1.0000	0.6275	0.6964	0.0341
QUANT	-0.3483	0.6275	1.0000	0.7427	0.2347
ANALYTIC	-0.1612	0.6964	0.7427	1.0000	0.1847
BQ#H	-0.0992	0.0341	0.2347	0.1847	1.0000
BQ#J	-0.1251	0.3201	0.2580	0.2283	0.0244
BQ#NX	0.0018	-0.1496	-0.2190	-0.2153	-0.3541
BQ#O	0.0013	0.1908	0.1807	0.1718	0.1375
BQ#P	-0.0248	0.1867	0.1701	0.1422	0.0414
ENROLL	-0.0535	0.0276	0.0492	0.0558	0.0003

SEX	BQ#J	BQ#NX	BQ#O	BQ#P	ENROLL
VERBAL					
QUANT	-0.1251	0.0018	0.0013	-0.0248	-0.0535
ANALYTIC	0.3201	-0.1496	0.1908	0.1867	0.0276
BQ#H	0.2580	-0.2190	0.1807	0.1701	0.0492
BQ#J	0.2283	-0.2153	0.1718	0.1422	0.0558
BQ#NX	0.0244	-0.3541	0.1375	0.0414	0.0003
BQ#O	1.0000	0.1068	0.2358	0.2561	0.0928
BQ#P	0.1068	1.0000	-0.0108	0.0779	0.1179
ENROLL	0.2358	-0.0108	1.0000	0.6733	0.1138
	0.2561	0.0779	0.6733	1.0000	0.1089
	0.0928	0.1179	0.1138	0.1089	1.0000

Definition of variables:

Sex: 1 = male 2 = female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 = never 2 = before 1986 3 = currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 = yes 0 = no

* Correlations significant to no more than two decimal places.

Table 14

Weighted Correlations with Enrollment Status*

Non-Black, Non-Hispanic Examinees Only

	SEX	VERBAL	QUANT	ANALYTIC	BQ#H
SEX	1.0000	-0.0514	-0.3111	-0.1136	-0.0742
VERBAL	-0.0514	1.0000	0.4975	0.5947	-0.1016
QUANT	-0.3111	0.4975	1.0000	0.7269	0.2119
ANALYTIC	-0.1136	0.5947	0.7269	1.0000	0.2334
BQ#H	-0.0742	-0.1016	0.2119	0.2334	1.0000
BQ#J	-0.0139	0.2125	0.1537	0.1616	0.0049
BQ#NX	-0.0041	-0.0523	-0.1469	-0.1730	-0.3533
BQ#O	0.1202	0.2419	0.1723	0.1905	0.0771
BQ#P	0.1201	0.2033	0.1255	0.1538	0.0219
ENROLL	0.0534	0.0417	0.0333	0.0053	-0.0389

	BQ#J	BQ#NX	BQ#O	BQ#P	ENROLL
SEX	-0.0139	-0.0041	0.1202	0.1201	0.0534
VERBAL	0.2125	-0.0523	0.2419	0.2033	0.0417
QUANT	0.1537	-0.1469	0.1723	0.1255	0.0333
ANALYTIC	0.1616	-0.1730	0.1905	0.1538	0.0053
BQ#H	0.0049	-0.3533	0.0771	0.0219	-0.0389
BQ#J	1.0000	0.0820	0.2214	0.2733	0.0323
BQ#NX	0.0820	1.0000	-0.0194	0.0469	0.0828
BQ#O	0.2214	-0.0194	1.0000	0.6796	0.1072
BQ#P	0.2733	0.0469	0.6796	1.0000	0.1492
ENROLL	0.0323	0.0828	0.1072	0.1492	1.0000

Definition of variables:

Sex: 1 = male 2 = female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 = never 2 = before 1986 3 = currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 = yes 0 = no

* Correlations significant to no more than two decimal places.

Table 15

Number of Examinees Selecting Each Field of Study on the Background Questionnaire, and Number and Percentage Who Enrolled in Exactly that Same Field of Study

Planned Field of Study (From GRE Background Questionnaire)	Number Planning That Field	No. Enrolled in Exactly Same Field	
		N	%
Drama	7	1	14.3
Music	22	13	59.1
Fine Arts	12	4	33.3
English	44	21	47.7
Comparative literature	3	1	33.3
Linguistics	7	3	42.9
Spanish	18	12	66.7
French	5	5	100.0
German	1	0	0.0
Classical languages	1	1	100.0
Asian lang & lit	1	0	0.0
Russian/Slavic lang & lit	3	2	66.7
Other foreign languages	1	0	0.0
Speech	7	0	0.0
Architecture	24	9	37.5
Art history	6	4	66.7
Archaeology	4	1	25.0
Religion	32	22	68.8
Philosophy	8	2	25.0
Other humanities	7	2	28.6
Exper/devel psychology	13	1	7.7
Clinical Psychology	100	27	27.0
Social psychology	13	3	23.1
Other psychology	63	15	23.8
History	16	9	56.3
Economics	26	10	38.5
Political science/govt	28	8	28.6
International relations	34	9	26.5
American studies	1	0	0.0
Anthropology	14	6	42.9
Sociology	22	12	54.5
Urban development	6	3	50.0
Geography	4	4	100.0
Other social sciences	27	4	14.8
Mathematics	15	8	53.3
Applied mathematics	4	0	0.0
Statistics	8	1	12.5
Computer science	55	24	43.6
Physics	14	6	42.9
Chemistry	36	25	69.4
Geology	16	8	50.0

Table 15 (continued)

Planned Field of Study (From GRE Background Questionnaire)	Number Planning That Field	No. Enrolled in Exactly Same Field	
		N	%
Astronomy	2	1	50.0
Oceanography	4	1	25.0
Other physical sciences	7	2	28.6
Electrical engineering	84	43	51.2
Mechanical engineering	26	15	57.7
Civil engineering	18	9	50.0
Chemical engineering	12	6	50.0
Industrial engineering	8	3	37.5
Aeronautical engineering	3	1	33.3
Metallurgy	0	0	0.0
Other engineering	16	4	25.0
Biology	31	6	19.4
Botany	5	2	40.0
Zoology	5	2	40.0
Molecular/cellular bio	7	2	28.6
Microbiology	23	4	17.4
Genetics	5	0	0.0
Biochemistry	17	6	35.3
Physiology	4	2	50.0
Biophysics	0	0	0.0
Environ science/ecology	11	2	18.2
Other biological sciences	13	0	0.0
Anatomy	2	0	0.0
Biomedical science	10	1	10.0
Medicine	9	2	22.2
Dentistry	3	1	33.3
Nursing	47	19	40.4
Pharmacology	6	1	16.7
Pathology	4	0	0.0
Bacteriology	0	0	0.0
Pharmacy	8	5	62.5
Nutrition	10	6	60.0
Speech/lang pathology	29	18	62.1
Audiology	5	4	80.0
Occupational therapy	0	0	0.0
Physical therapy	16	5	31.3
Public health	40	18	45.0
Hospital/health admin	15	4	26.7
Veterinary medicine	6	2	33.3
Forestry	1	0	0.0
Agriculture	11	5	45.5
Entomology	2	1	50.0
Home economics	0	0	0.0
Education	177	101	57.1
Ed. psychology	31	6	19.4
Guidance	58	21	36.2

Table 15 (continued)

Planned Field of Study (From GRE Background Questionnaire)	Number Planning That Field	No. Enrolled in Exactly Same Field	
		N	%
Ed. administration	58	27	46.6
Physical education	22	12	54.5
Public administration	72	31	43.1
Business	38	12	31.6
Law	9	3	33.3
Industrial relations	11	2	18.2
Communications	34	8	23.5
Journalism	12	2	16.7
Library science	21	14	66.7
Social work	39	14	35.9
Unlisted	41	5	12.2
Undecided	141	N/A	N/A
Omit	119	N/A	N/A

Table 16

Distribution of Change Scores among Examinees
Who Became Enrolled in Graduate or Professional School

(N = 1,035)

Score*	Freq.	Pct.	Cum. Pct.
1	741	71.6	71.6
2	105	10.1	81.7
3	83	8.0	89.8
4	31	3.0	92.8
5	25	2.4	95.2
6	50	4.8	100.0

*
1 - Exactly the same field.
2 - Nearly the same field.
3 - Similar field or similar curriculum but different department.
4 - Field with a different curriculum, but may include similar preparation.
5 - Remotely related field.
6 - Totally unrelated field.

Table 17

Changes in Field of Study

(Computed only on examinees who specified intended fields of study and who were subsequently enrolled in specified graduate fields of study)

Group	Field changed N	(%)	Field not changed N	(%)	Total
Black male	30	(29.7)	71	(70.3)	101
Black female	41	(18.1)	185	(81.9)	226
Hispanic male	36	(19.7)	147	(80.3)	183
Hispanic female	32	(16.5)	162	(83.5)	194
Non-Black/Hisp. male	14	(10.3)	122	(89.7)	136
Non-Black/Hisp. female	36	(18.8)	156	(81.3)	192
Total	189	(18.3)	843	(81.7)	1032

Chi-square = 15.29 df = 5 $p < 0.02$

Table 18

*

Weighted Correlations with Change Score

Total Sample Enrolled in Fall 1987
(N = 1,035)

	RACE H	RACE B	SEX	VERBAL	QUANT	ANALYTIC
RACE H	1.0000	-0.0372	-0.0241	-0.1059	-0.0795	-0.1077
RACE B	-0.0372	1.0000	0.0476	-0.2068	-0.2077	-0.2165
SEX	-0.0241	0.0476	1.0000	-0.0600	-0.2818	-0.1123
VERBAL	-0.1059	-0.2068	-0.0600	1.0000	0.5435	0.6160
QUANT	-0.0795	-0.2077	-0.2818	0.5435	1.0000	0.7465
ANALYTIC	-0.1077	-0.2165	-0.1123	0.6160	0.7465	1.0000
BQ#H	0.0232	-0.0351	-0.0695	-0.0701	0.2220	0.2226
BQ#J	0.0306	-0.0092	-0.0882	0.2082	0.1649	0.1395
BQ#NX	0.0129	0.0666	-0.0183	-0.1201	-0.1947	-0.2220
BQ#O	-0.0259	-0.1197	0.0761	0.2234	0.1938	0.1940
BQ#P	-0.0534	-0.1481	0.0109	0.2221	0.2083	0.1953
CHANGE	0.0151	0.0392	0.1255	-0.1336	-0.1631	-0.0540

	BQ#H	BQ#J	BQ#NX	BQ#O	BQ#P	CHANGE
RACE H	0.0232	0.0306	0.0129	-0.0259	-0.0534	0.0151
RACE B	-0.0351	-0.0092	0.0666	-0.1197	-0.1481	0.0392
SEX	-0.0695	-0.0882	-0.0183	0.0761	0.0109	0.1255
VERBAL	-0.0701	0.2082	-0.1201	0.2234	0.2221	-0.1336
QUANT	0.2220	0.1649	-0.1947	0.1938	0.2083	-0.1631
ANALYTIC	0.2226	0.1395	-0.2220	0.1940	0.1953	-0.0540
BQ#H	1.0000	0.0800	-0.3229	0.1054	0.0836	0.0390
BQ#J	0.0800	1.0000	0.0512	0.1992	0.2704	-0.0135
BQ#NX	-0.3229	0.0512	1.0000	-0.0536	-0.0478	0.0580
BQ#O	0.1054	0.1992	-0.0536	1.0000	0.6657	-0.0675
BQ#P	0.0836	0.2704	-0.0478	0.6657	1.0000	-0.0422
CHANGE	0.0390	-0.0135	0.0580	-0.0675	-0.0422	1.0000

Definition of variables:

Race H: 1 = Hispanic 0 = not Hispanic
Race B: 1 = Black 0 = not Black
Sex: 1 = male 2 = female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 = never 2 = before 1986 3 = currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 = yes 0 = no
CHANGE: Change score (1-6)

*
Correlations significant to no more than two decimal places.

Table 19

Weighted Correlations with Change Score*

Sample Never Previously Enrolled in Graduate School

	RACE H	RACE B	SEX	VERBAL	QUANT	ANALYTIC
RACE H	1.0000	-0.0366	-0.0410	-0.1040	-0.0755	-0.1108
RACE B	-0.0366	1.0000	0.0414	-0.1864	-0.2038	-0.2107
SEX	-0.0410	0.0414	1.0000	-0.0456	-0.3542	-0.1208
VERBAL	-0.1040	-0.1864	-0.0456	1.0000	0.4711	0.6068
QUANT	-0.0755	-0.2038	-0.3542	0.4711	1.0000	0.6986
ANALYTIC	-0.1108	-0.2107	-0.1208	0.6068	0.6986	1.0000
BQ#H	0.0215	0.0077	-0.1653	-0.0759	0.1882	0.1941
BQ#J	0.0343	-0.0145	-0.0892	0.1696	0.1351	0.1424
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	-0.0220	-0.1127	0.0544	0.2108	0.1656	0.1618
BQ#P	-0.0600	-0.1629	-0.0097	0.2398	0.2145	0.1874
CHANGE	0.0113	0.0591	0.1224	-0.1389	-0.2086	-0.0707

	BQ#H	BQ#J	BQ#NX	BQ#O	BQ#P	CHANGE
RACE H	0.0215	0.0343	0.0000	-0.0220	-0.0600	0.0113
RACE B	0.0077	-0.0145	0.0000	-0.1127	-0.1629	0.0591
SEX	-0.1653	-0.0892	0.0000	0.0544	-0.0097	0.1224
VERBAL	-0.0759	0.1696	0.0000	0.2108	0.2398	-0.1389
QUANT	0.1882	0.1351	0.0000	0.1656	0.2145	-0.2086
ANALYTIC	0.1941	0.1424	0.0000	0.1618	0.1874	-0.0707
BQ#H	1.0000	0.2337	0.0000	0.1575	0.1840	0.0599
BQ#J	0.2337	1.0000	0.0000	0.2958	0.2833	-0.0279
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	0.1575	0.2958	0.0000	1.0000	0.7310	-0.0664
BQ#P	0.1840	0.2833	0.0000	0.7310	1.0000	-0.0682
CHANGE	0.0599	-0.0279	0.0000	-0.0664	-0.0682	1.0000

Definition of variables:

Race H: 1 - Hispanic 0 - not Hispanic
Race B: 1 - Black 0 - not Black
Sex: 1 - male 2 - female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 - never 2 - before 1986 3 - currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 - yes 0 - no
CHANGE: Change score (1-6)

* Correlations significant to no more than two decimal places.

Table 20

Weighted Correlations with Change Score*

Sample Enrolled in Graduate School When They Took the GRE

	RACE H	RACE B	SEX	VERBAL	QUANT	ANALYTIC
RACE H	1.0000	-0.0548	-0.0238	-0.1003	-0.0865	-0.1064
RACE B	-0.0548	1.0000	0.0719	-0.2682	-0.2454	-0.2505
SEX	-0.0238	0.0719	1.0000	-0.1116	-0.1618	-0.0730
VERBAL	-0.1003	-0.2682	-0.1116	1.0000	0.6839	0.6720
QUANT	-0.0865	-0.2454	-0.1618	0.6839	1.0000	0.7809
ANALYTIC	-0.1064	-0.2505	-0.0730	0.6720	0.7809	1.0000
BQ#H	0.0583	-0.0781	0.0791	0.0560	0.3682	0.3031
BQ#J	0.0301	0.0193	-0.0135	0.3767	0.3914	0.2219
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	-0.0272	-0.1459	0.1793	0.2432	0.1492	0.1430
BQ#P	-0.0185	-0.1086	0.0444	0.0746	0.1262	0.1457
CHANGE	0.0183	-0.0387	0.2082	0.0082	0.0021	0.0383

	BQ#H	BQ#J	BQ#NX	BQ#O	BQ#P	CHANGE
RACE H	0.0583	0.0301	0.0000	-0.0272	-0.0185	0.0183
RACE B	-0.0781	0.0193	0.0000	-0.1459	-0.1086	-0.0387
SEX	0.0791	-0.0135	0.0000	0.1793	0.0444	0.2082
VERBAL	0.0560	0.3767	0.0000	0.2432	0.0746	0.0082
QUANT	0.3682	0.3914	0.0000	0.1492	0.1262	0.0021
ANALYTIC	0.3031	0.2219	0.0000	0.1430	0.1457	0.0383
BQ#H	1.0000	0.0399	0.0000	0.0072	-0.0283	0.0296
BQ#J	0.0399	1.0000	0.0000	0.1272	0.2146	0.0276
BQ#NX	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BQ#O	0.0072	0.1272	0.0000	1.0000	0.6313	-0.0835
BQ#P	-0.0283	0.2146	0.0000	0.6313	1.0000	0.0849
CHANGE	0.0296	0.0276	0.0000	-0.0835	0.0849	1.0000

Definition of variables:

Race H: 1 - Hispanic 0 - not Hispanic
Race B: 1 - Black 0 - not Black
Sex: 1 - male 2 - female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 - never 2 - before 1986 3 - currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 - yes 0 - no
CHANGE: Change score (1-6)

* Correlations significant to no more than two decimal places.

Table 21

Weighted Correlations with Change Score*

Black Examinees Only

	SEX	VERBAL	QUANT	ANALYTIC	BQ#H
SEX	1.0000	-0.0992	-0.2621	-0.0814	0.0184
VERBAL	-0.0992	1.0000	0.5881	0.6662	0.0851
QUANT	-0.2621	0.5881	1.0000	0.7543	0.2081
ANALYTIC	-0.0814	0.6662	0.7543	1.0000	0.2434
BQ#H	0.0184	0.0851	0.2081	0.2434	1.0000
BQ#J	-0.0736	0.3004	0.1517	0.1982	-0.0461
BQ#NX	-0.0006	-0.1789	-0.1724	-0.1933	-0.4464
BQ#O	0.0300	0.1811	0.1937	0.2143	0.1320
BQ#P	-0.0102	0.1144	0.1601	0.1558	0.0124
CHANGE	-0.0928	-0.0007	-0.0708	-0.0603	0.0653

	BQ#J	BQ#NX	BQ#O	BQ#P	CHANGE
SEX	-0.0736	-0.0006	0.0300	-0.0102	-0.0928
VERBAL	0.3004	-0.1789	0.1811	0.1144	-0.0007
QUANT	0.1517	-0.1724	0.1937	0.1601	-0.0708
ANALYTIC	0.1982	-0.1933	0.2143	0.1558	-0.0603
BQ#H	-0.0461	-0.4464	0.1320	0.0124	0.0653
BQ#J	1.0000	0.0938	0.1841	0.2549	0.0193
BQ#NX	0.0938	1.0000	-0.0602	0.0753	-0.0985
BQ#O	0.1341	-0.0602	1.0000	0.6509	0.0335
BQ#P	0.2549	0.0753	0.6509	1.0000	0.0045
CHANGE	0.0193	-0.0985	0.0335	0.0045	1.0000

Definition of variables:

Sex: 1 - male 2 - female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 - never 2 - before 1986 3 - currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 - yes 0 - no
CHANGE: Change score (1-6)

*
Correlations significant to no more than two decimal places.

Table 22

Weighted Correlations with Change Score*

Hispanic Examinees Only

	SEX	VERBAL	QUANT	ANALYTIC	BQ#H
SEX	1.0000	-0.1228	-0.3969	-0.1976	-0.1782
VERBAL	-0.1228	1.0000	0.6108	0.6855	0.0290
QUANT	-0.3969	0.6108	1.0000	0.7336	0.2696
ANALYTIC	-0.1976	0.6855	0.7336	1.0000	0.2177
BQ#H	-0.1782	0.0290	0.2696	0.2177	1.0000
BQ#J	-0.1451	0.3801	0.3288	0.2841	0.0722
BQ#NX	0.0351	-0.1277	-0.2280	-0.2198	-0.3276
BQ#O	0.0227	0.1778	0.1687	0.1606	0.1423
BQ#P	-0.0019	0.2146	0.1801	0.1613	0.0334
CHANGE	-0.0226	0.0860	0.0064	0.0229	0.0061

	BQ#J	BQ#NX	BQ#O	BQ#P	CHANGE
SEX	-0.1451	0.0351	0.0227	-0.0019	-0.0226
VERBAL	0.3801	-0.1277	0.1778	0.2146	0.0860
QUANT	0.3288	-0.2280	0.1687	0.1801	0.0064
ANALYTIC	0.2841	-0.2198	0.1606	0.1613	0.0229
BQ#H	0.0722	-0.3276	0.1423	0.0334	0.0061
BQ#J	1.0000	0.0340	0.2299	0.2998	0.0436
BQ#NX	0.0340	1.0000	-0.0675	0.0196	0.0769
BQ#O	0.2299	-0.0675	1.0000	0.6527	-0.0104
BQ#P	0.2998	0.0196	0.6527	1.0000	0.0523
CHANGE	0.0436	0.0769	-0.0104	0.0523	1.0000

Definition of variables:

Sex: 1 - male 2 - female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 - never 2 - before 1986 3 - currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 - yes 0 - no
CHANGE: Change score (1-6)

* Correlations significant to no more than two decimal places.

Table 23

Weighted Correlations with Change Score*

Non-Black, Non-Hispanic Examinees Only

	SEX	VERBAL	QUANT	ANALYTIC	BQ#H
SEX	1.0000	-0.0503	-0.2783	-0.1060	-0.0687
VERBAL	-0.0503	1.0000	0.5122	0.5862	-0.0883
QUANT	-0.2783	0.5122	1.0000	0.7311	0.2233
ANALYTIC	-0.1060	0.5862	0.7311	1.0000	0.2256
BQ#H	-0.0687	-0.0883	0.2233	0.2256	1.0000
BQ#J	-0.0853	0.2063	0.1655	0.1385	0.0862
BQ#NX	-0.0243	-0.1030	-0.1831	-0.2135	-0.3149
BQ#O	0.0863	0.2040	0.1692	0.1676	0.1004
BQ#P	0.0179	0.1949	0.1777	0.1612	0.0873
CHANGE	0.1428	-0.1431	-0.1702	-0.0467	0.0393

	BQ#J	BQ#NX	BQ#O	BQ#P	CHANGE
SEX	-0.0853	-0.0243	0.0863	0.0179	0.1428
VERBAL	0.2063	-0.1030	0.2040	0.1949	-0.1431
QUANT	0.1655	-0.1831	0.1692	0.1777	-0.1702
ANALYTIC	0.1385	-0.2135	0.1676	0.1612	-0.0467
BQ#H	0.0862	-0.3149	0.1004	0.0873	0.0393
BQ#J	1.0000	0.0496	0.2006	0.2747	-0.0180
BQ#NX	0.0496	1.0000	-0.0437	-0.0480	0.0648
BQ#O	0.2006	-0.0437	1.0000	0.6608	-0.0712
BQ#P	0.2747	-0.0480	0.6608	1.0000	-0.0429
CHANGE	-0.0180	0.0648	-0.0712	-0.0429	1.0000

Definition of variables:

Sex: 1 - male 2 - female
Verbal: GREV score
Quant: GREQ score
Analytic: GREA score
BQ#H: Year of baccalaureate
BQ#J: Degree objective
BQ#NX: Ever in grad. school 1 - never 2 - before 1986 3 - currently
BQ#O: GPA in major
BQ#P: Overall GPA last two years
Enroll: Enrolled at the time of the survey 1 - yes 0 - no
CHANGE: Change score (1-6)

* Correlations significant to no more than two decimal places.

Appendix A
GRE Background Questionnaire, 1986/87

Background Information Questions. Answering the following background questions is important but optional. Your responses will be appreciated, because the information is used for the following purposes:

1. Score interpretation data for examinees and institutions
2. Group statistics describing examinee populations
3. Research studies

For these uses, individuals' responses are never communicated to any institution or agency. In addition, you can be assured that your responses to these background questions will not affect your scores or ETS's reporting of them in any way.

If you are registering for the Minority Graduate Student Locator Service, it is essential to answer at least all the questions in the shaded areas. Your individual responses to questions in the shaded areas may be reported to one or more institutions.

Please fill in the appropriate oval on your registration form for each of the following background questions.

* A. Have you previously taken one or more GRE tests?

(1) No
(2) Yes — took the test(s) on or prior to September 30, 1986
(3) Yes — took the test(s) after September 30, 1986

* B.1 Are you a United States citizen, a resident alien ("permanent resident") in the United States, or neither one? (Specify which one.)

(1) United States citizen
(2) Resident alien ("permanent resident") in the United States
(3) Neither a United States citizen nor a resident alien ("permanent resident") in the United States

If your answer to B.1 is (1), you need not answer B.2. Skip to C.

B.2 In the Citizenship and Foreign Country or Region Code List on page 83, find the code of the country of which you are a citizen. Fill in completely the spaces for that country's code number.

If you are a citizen of the United States or a resident alien ("permanent resident") in the United States, answer questions C and D. All other registrants should skip to question E.1.

* C. In the State and Territories Code List on page 82 find the code number for the state or U.S. Territory you consider your permanent residence. Fill in completely the spaces for that state's or territory's code number.

* D. How do you describe yourself? (Fill in only one space.)

(1) American Indian, Eskimo, or Aleut
(2) Black or Afro-American
(3) Mexican American or Chicano
(4) Oriental or Asian American
(5) Puerto Rican
(6) Other Hispanic or Latin American
(7) White
(8) Other

* E.1 Do you communicate better in English than in any other language?

(1) Yes (2) No

If your answer to E.1 is "yes" you need not answer E.2. Skip to F.

E.2 Find your native (or best) language of communication in the list on page 84. The languages are arranged in alphabetical order for your convenience. Fill in completely the spaces for the code number shown. If you do not find your native (or best) language listed, fill in the spaces for code 000.

* F. What is your best estimate of the total student enrollment at the school from which you received or will receive your bachelor's degree?

(1) Fewer than 1,000
(2) 1,000-4,999
(3) 5,000-9,999
(4) 10,000-19,999
(5) 20,000 or more

* G. Which of the following best describes your undergraduate institution?

(1) Public
(2) Private—no church affiliation
(3) Private—church affiliation

* H. In what calendar year did you receive or do you expect to receive your bachelor's degree?
(Please fill in completely the spaces on your registration form corresponding to the last two digits of the year.)

* I. Referring to the Major Field Code List on page 82, find your undergraduate major field of study. Fill in completely the spaces for that field's code number.

* J. What is your eventual graduate degree objective?

(1) Nondegree study
(2) Master's (M.A., M.S., M.Ed.)
(3) Intermediate (such as Specialist)
(4) Doctorate (Ph.D., Ed.D.)
(5) Postdoctoral study

* K. Referring to the Major Field Code List on page 82, find the field in which you plan to do your graduate work. Fill in completely the spaces for that field's code number. If you are undecided, use:

00 Undecided

L. What permanently disabling condition do you have, if any? (Select one only.)

(1) None
(2) Blindness or other visual impairment
(3) Deafness or other hearing impairment
(4) Paraplegia
(5) Learning disability
(6) Other neurological or orthopedic impairment
(7) Multiple handicaps
(8) Other

* M. Which of the following best describes the graduate institution you most recently attended or currently attend on at least a half-time basis?

(1) I have never attended graduate school or have attended graduate school on less than a half-time basis only.
(2) Public
(3) Private — no church affiliation
(4) Private — church affiliation

* N. In what calendar year did you last attend graduate school on at least a half-time basis?

Fill in the spaces on your registration form corresponding to the last two digits of the year. If you have not attended graduate school, use the following code:

00 I have never attended graduate school or have attended on less than a half-time basis only.

O. In courses in your undergraduate major field only, what grade average have you received so far? (If your college does not use letter grades, please mark the letter grade that is the closest equivalent to your grade average.)

(1) D or lower
(2) C –
(3) C
(4) B –
(5) B
(6) A –
(7) A

P. Considering only your last two college years, approximately what overall grade average have you received? (If your college does not use letter grades, please mark the letter grade that is the closest equivalent to your grade average.)

(1) D or lower
(2) C –
(3) C
(4) B –
(5) B
(6) A –
(7) A

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Q. Is there any one geographic region in which you would prefer to attend graduate school? (Select one only.)

(1) New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)
(2) Mid-Atlantic (Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania)
(3) South (Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia)
(4) Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin)
(5) Southwest (Arizona, Arkansas, New Mexico, Oklahoma, Texas)
(6) West (Alaska, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming)
(7) Any region would be acceptable

R. About how many hours per week did you spend working for wages during your most recent school year?

(1) 0
(2) 1-5
(3) 6-10
(4) 11-20
(5) More than 20

S. About how many hours per week did you spend in community service activities during your most recent school year?

(1) 0
(2) 1-5
(3) 6-10
(4) 11-20
(5) More than 20

T. In which one of the following achievements have you received your most important honor, award, prize, or other recognition? (Select one only.)

(1) Student government or organization
(2) Professional — an award or prize for fieldwork or publication of a scholarly article or book
(3) Community service — election or appointment to a community service unit, activity, or group
(4) Literary — editing the college paper, yearbook, or literary magazine or having a poem, story, or article published in a public paper or magazine
(5) Artistic — a high rating in a music contest, a part in a play, opera, or show, or an award in an art competition
(6) Scientific — an award or recognition in a science competition
(7) Athletic — a letter in athletics
(8) None of the above categories

* U. What was the highest level of education attained by your father?

(1) Did not graduate from high school
(2) High school graduate
(3) Beyond high school but did not graduate from a four-year college
(4) Graduate of a four-year college
(5) Beyond college but did not receive a graduate or professional degree
(6) Graduate or professional degree

* V. What was the highest level of education attained by your mother?

(1) Did not graduate from high school
(2) High school graduate
(3) Beyond high school but did not graduate from a four-year college
(4) Graduate of a four-year college
(5) Beyond college but did not receive a graduate or professional degree
(6) Graduate or professional degree

* W. What was the approximate average annual income of your family *during the time when you were in high school*?

(1) Less than $6,500
(2) $6,500 to $14,999
(3) $15,000 to $25,000
(4) More than $25,000

* X. Which of the following best describes the location of the high school you attended?

(1) Large city
(2) Suburb of a large city; metropolitan area
(3) Other city or town
(4) Farming community or other rural area

GRE Registration Questions:

6. DATE OF BIRTH

Month	Day	Year
○ Jan		
○ Feb		
○ Mar	⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
○ Apr		
○ May		
○ June		
○ July		
○ Aug		
○ Sept		
○ Oct		
○ Nov		
○ Dec		

7. SEX

1 ○ Male 2 ○ Female

DEPARTMENT CODE LIST (for Item 13) AND MAJOR FIELD CODE LIST (for Item 16 I and K)

HUMANITIES
11 Archaeology
12 Architecture
[illegible] Art History
13 Classical Languages
[illegible] Comparative Literature
03 Dramatic Arts
14 English
[illegible] Far Eastern Languages and Literature
15 Fine Arts, Art, Design
16 French
17 German
04 Linguistics
18 Music
[illegible] Near Eastern Languages and Literature
20 Philosophy
21 Religious Studies or Religion
22 Russian/Slavic Studies
23 Spanish
24 Speech
10 Other Foreign Languages
99 Other Humanities

SOCIAL SCIENCES
27 American Studies
01 Anthropology
[illegible] Business and Commerce
83 Communications
04 Economics
[illegible] Education (including M.A. in Teaching)
01 Educational Administration
70 Geography
02 Government
[illegible] Guidance and Counseling
[illegible] History
[illegible] Industrial Relations and Personnel
[illegible] International Relations
19 Journalism
[illegible] Law
90 Library Science
91 Physical Education
[illegible] Planning (City, Community, Urban, Regional)
82 Political Science
[illegible] Psychology, Clinical
[illegible] Psychology, Educational
[illegible] Psychology, Experimental
Psychology, Developmental
[illegible] Psychology, Other
79 Psychology, Social
[illegible] Public Administration
[illegible] Social Work
[illegible] Sociology
[illegible] Other Social Sciences

BIOLOGICAL SCIENCES
31 Agriculture
32 Anatomy
[illegible] Audiology
33 Bacteriology
34 Biochemistry
35 Biology
45 Biomedical Sciences
36 Biophysics
37 Botany
38 Dentistry
39 Entomology
48 Environmental Science/Ecology
40 Forestry
[illegible] Genetics
41 Home Economics
[illegible] Hospital and Health Services Administration
42 Medicine
07 Microbiology
74 Molecular & Cellular Biology
43 Nursing
77 Nutrition
44 Occupational Therapy
[illegible] Pathology
[illegible] Pharmacology
47 Pharmacy
48 Physical Therapy
49 Physiology
50 Public Health
[illegible] Speech-Language Pathology
51 Veterinary Medicine
52 Zoology
[illegible] Other Biological Sciences

PHYSICAL SCIENCES
54 Applied Mathematics
61 Astronomy
62 Chemistry
[illegible] Computer Sciences
[illegible] Engineering, Aeronautical
[illegible] Engineering, Chemical
[illegible] Engineering, Civil
[illegible] Engineering, Electrical
[illegible] Engineering, Industrial
[illegible] Engineering, Mechanical
[illegible] Engineering, Other
71 Geology
72 Mathematics
73 Metallurgy
75 Oceanography
76 Physics
[illegible] Statistics
[illegible] Other Physical Sciences

02 ANY DEPARTMENT NOT LISTED

STATE AND TERRITORIES CODE LIST (for Item 16 C)

01 Alabama
[illegible] Alaska
[illegible] American Samoa
03 Arizona
04 Arkansas
[illegible] California
[illegible] Canal Zone
[illegible] Colorado
07 Connecticut
[illegible] Delaware
[illegible] District of Columbia
10 Florida
11 Georgia
[illegible] Guam
12 Hawaii
13 Idaho
14 Illinois
15 Indiana
16 Iowa
17 Kansas
18 Kentucky
19 Louisiana
20 Maine
[illegible] Marshall Islands
21 Maryland
22 Massachusetts
23 Michigan
[illegible] Midway Islands
24 Minnesota
25 Mississippi
26 Missouri
27 Montana
28 Nebraska
29 Nevada
30 New Hampshire
31 New Jersey
32 New Mexico
33 New York
34 North Carolina
35 North Dakota
[illegible] Northern Mariana Islands
36 Ohio
37 Oklahoma
38 Oregon
39 Pennsylvania
[illegible] Puerto Rico
40 Rhode Island
41 South Carolina
42 South Dakota
43 Tennessee
44 Texas
45 Utah
46 Vermont
47 Virginia
[illegible] Virgin Islands
48 Washington
49 West Virginia
50 Wisconsin
51 Wyoming

Appendix B

Definition of Eleven Broad Fields of Study
(Headings in parentheses correspond to names used in Data Summary Reports)

Arts

- Drama
- Music
- Fine Arts

Humanities ("Other humanities")

- English
- Comparative Literature
- Linguistics
- Spanish
- French
- German
- Classical languages
- Far Eastern languages and literature
- Near Eastern languages and literature
- Russian/Slavic languages and literature
- Other foreign languages
- Speech
- Architecture
- Art history
- Archaeology
- Religion
- Philosophy
- Other humanities

Social/behavioral sciences ("Behavioral sciences")

- Experimental/developmental psychology
- Clinical psychology
- Social psychology
- Other psychology
- History
- Economics
- Political science/government
- International relations
- American studies
- Anthropology
- Sociology
- Urban development
- Geography
- Other social sciences

(continued next page)

Applied social sciences ("Other social sciences")

- Public administration
- Business
- Law
- Industrial relations
- Communications
- Journalism
- Library science
- Social work

Education

- Education
- Educational psychology
- Guidance
- Educational administration
- Physical education

Biological sciences ("Biosciences")

- Biology
- Botony
- Zoology
- Molecular/cellular biology
- Microbiology
- Genetics
- Biochemistry
- Physiology
- Biophysics
- Environmental sciences/ecology
- Other biological sciences

Applied biology ("Other applied biological sciences")

- Veterinary medicine
- Entomology
- Forestry
- Agriculture
- Home economics

(continued next page)

Health ("Health sciences")

- Anatomy
- Biomedical science
- Medicine
- Dentistry
- Nursing
- Pharmacology
- Pathology
- Bacteriology
- Pharmacy
- Nutrition
- Speech/language pathology
- Audiology
- Occupational therapy
- Physical therapy
- Public health
- Hospital/health administration

Mathematical Sciences

- Mathematics
- Applied mathematics
- Statistics
- Computer science

Physical sciences

- Astronomy
- Physics
- Chemistry
- Geology
- Oceanography
- Other physical sciences

Engineering

- Aeronautical engineering
- Chemical engineering
- Mechanical engineering
- Civil engineering
- Electrical engineering
- Industrial engineering
- Metallurgy
- Other engineering

Appendix C
Change Codes Assigned to Each Combination of
Planned Field of Study versus Subsequent Field of Enrollment

Planned Field of Study	Field in which Enrolled	Change Code*
Drama	Fine Arts	4
Drama	Communications	3
Music	Linguistics	6
Fine Arts	Education	5
Fine Arts	Other humanities	3
English	Music	6
English	Communications	3
Comparative literature	English	2
Linguistics	Education	6
Spanish	Other foreign languages	4
Spanish	Business	6
Spanish	Education	5
Russian	Journalism	5
Other foreign languages	English	4
Speech	Other social sciences	6
Speech	Education	3
Architecture	Education	6
Architecture	History	6
Art history	Pharmacology	6
Archaeology	Art history	3
Philosophy	Religion	4
Other humanities	English	3
Exper/Devel Psychology	Other psychology	2
Exper/Devel Psychology	Ed. psychology	3
Exper/Devel Psychology	Other biological sciences	3
Exper/Devel Psychology	Social psychology	3
Exper/Devel Psychology	Sociology	5
Exper/Devel Psychology	Guidance	3
Clinical Psychology	Other psychology	2
Clinical Psychology	Ed. psychology	3
Clinical Psychology	Religion	4
Clinical Psychology	Spanish	6
Clinical Psychology	Nursing	6
Clinical Psychology	Public health	6
Clinical Psychology	Exper/Devel Psychology	2
Clinical Psychology	Education	5

* 1=Exactly the same field.
2=Nearly the same field.
3=Similar field or similar curriculum but different department.
4=Field with a different curriculum, but may include similar preparation.
5=Remotely related field.
6=Totally unrelated field.

Planned Field of Study	Field in which Enrolled	Change Code*
Clinical Psychology	Law	6
Clinical Psychology	Public administration	6
Clinical Psychology	Sociology	5
Clinical Psychology	Guidance	3
Social psychology	Other psychology	2
Social psychology	Industrial relations	3
Social psychology	Guidance	4
Other psychology	Other social sciences	3
Other psychology	Social work	3
Other psychology	Ed. psychology	3
Other psychology	Guidance	3
Other psychology	Ed. administration	5
Other psychology	Industrial relations	3
History	English	6
History	Other social sciences	4
History	Law	3
Economics	Public administration	3
Economics	Social work	6
Political science/govt	Other social sciences	3
Political science/govt	Law	3
Political science/govt	Clinical Psychology	6
Political science/govt	Public administration	3
International relations	Journalism	5
International relations	Computer science	6
International relations	Law	3
International relations	Political science/govt	3
Anthropology	Archaeology	2
Anthropology	Education	6
Sociology	Ed. administration	6
Sociology	Public administration	4
Other social sciences	Communications	6
Other social sciences	Geography	3
Other social sciences	Computer science	6
Other social sciences	Industrial relations	3
Other social sciences	Law	3
Other social sciences	Clinical Psychology	3
Other social sciences	Public administration	3
Other social sciences	Sociology	3
Other social sciences	Other humanities	4
Other social sciences	Guidance	5

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Planned Field of Study	Field in which Enrolled	Change Code*
Mathematics	Statistics	2
Mathematics	Education	5
Applied mathematics	Mathematics	2
Statistics	Home economics	6
Statistics	Education	5
Computer science	Other engineering	2
Computer science	Business	5
Geology	Other engineering	3
Geology	Oceanography	2
Geology	Computer science	3
Astronomy	Environ science/ecology	4
Other physical sciences	Other engineering	3
Other physical sciences	Geology	3
Electrical engineering	Dentistry	6
Electrical engineering	Other physical sciences	3
Electrical engineering	Other engineering	2
Electrical engineering	Computer science	2
Civil engineering	Architecture	4
Civil engineering	Other engineering	2
Chemical engineering	Economics	6
Chemical engineering	Other engineering	2
Industrial engineering	Business	3
Aeronautical engineering	Business	6
Other engineering	Physics	4
Other engineering	Industrial engineering	2
Biology	Molecular/cellular bio	2
Biology	Microbiology	2
Biology	Physiology	2
Biology	Environ science/ecology	2
Biology	Other biological sciences	2
Biology	Medicine	2
Biology	Pharmacology	2
Biology	Education	5
Botany	Other biological sciences	2
Botany	Agriculture	2
Zoology	Environ science/ecology	2
Zoology	Other biological sciences	2
Molecular/cellular bio	Other biological sciences	2
Microbiology	Botany	2
Microbiology	Molecular/cellular bio	2
Microbiology	Other biological sciences	2
Microbiology	Biomedical science	2

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Planned Field of Study	Field in which Enrolled	Change Code*
Genetics	Anatomy	3
Biochemistry	Chemistry	3
Biochemistry	Microbiology	2
Biochemistry	Genetics	2
Biochemistry	Medicine	2
Physiology	Other biological sciences	2
Physiology	Medicine	2
Environ science/ecology	Urban development	3
Environ science/ecology	Civil engineering	4
Environ science/ecology	Education	5
Other biological sciences	Oceanography	3
Other biological sciences	Medicine	2
Other biological sciences	Forestry	4
Other biological sciences	Physical education	4
Biomedical science	Molecular/cellular bio	2
Biomedical science	Biochemistry	2
Biomedical science	Medicine	2
Medicine	Molecular/cellular bio	2
Medicine	Environ science/ecology	5
Medicine	Nursing	4
Nursing	Education	6
Nursing	Environ science/ecology	6
Nursing	Hospital/health admin	4
Nursing	Business	6
Pathology	Agriculture	5
Pharmacy	Pharmacology	2
Speech/lang pathology	Other humanities	6
Speech/lang pathology	Education	3
Speech/lang pathology	Communications	4
Physical therapy	Physiology	4
Physical therapy	Other biological sciences	4
Public health	Environ science/ecology	4
Public health	Hospital/health admin	2
Public health	Ed. administration	6
Public health	Law	6
Public health	Social work	6
Hospital/health admin	Clinical Psychology	6
Hospital/health admin	Public administration	2
Veterinary medicine	Biology	4
Forestry	Biology	4
Agriculture	Genetics	4
Entomology	Zoology	2

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Planned Field of Study	Field in which Enrolled	Change Code*
Education	English	5
Education	History	5
Education	Economics	5
Education	Agriculture	6
Education	Ed. psychology	2
Education	Guidance	2
Education	Ed. administration	2
Education	Public administration	6
Education	Business	6
Education	Communications	6
Ed. psychology	Public health	6
Ed. psychology	Guidance	2
Guidance	Ed. administration	2
Ed. administration	Other social sciences	5
Ed. administration	Computer science	6
Ed. administration	Biology	6
Ed. administration	Ed. psychology	2
Physical education	Other psychology	6
Physical education	Education	2
Public administration	Urban development	3
Public administration	Ed. psychology	6
Public administration	Business	4
Public administration	Law	3
Public administration	Journalism	6
Public administration	Social work	6
Business	Communications	5
Industrial relations	Guidance	6
Industrial relations	Public administration	4
Communications	Religion	6
Communications	Other humanities	3
Communications	Journalism	2
Journalism	Other humanities	3
Social work	Religion	3
Social work	Social psychology	3

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Appendix D

Rationale for the Six-Point Scale

The original plan to scale the degree of change in field of study rested on the assumption that there would be a sizable proportion of examinees changing their field and that the scale should be as precise as possible. The exact number of points was not determined until we began to code the various combination of changes. It was easy to anchor the two ends of the scale. One end of the scale was "no change" or "identical field." A large change where there was no obvious connection between the fields became the other end of the scale. For example, we regarded business and aeronautical engineering as completely different fields. Other combinations of major fields were placed between "identical" and "completely different." The final scale consisted of 6 points, identified as follows.

A score of "1" meant no change--the actual field of study was identical to the intended field.

A score of "2" was nearly identical, where the two fields generally appear as specialities within the same department, such as microbiology and biology. This category also included subfields identified as "other." For example, a change from other engineering to industrial engineering earned a score of "2."

An examinee was given a score of "3" if the change involved a different department and only a "similar" curriculum. In addition, this category included uncertainties. For example, a change from "geology" to "other engineering" was <u>probably</u> a change to petroleum engineering. But we had insufficient information to be certain. Furthermore, geology may or may not be studied in an engineering department, so we did not know how similar the curriculum would be. On the other hand, the change was probably not very great. A second example is the change from social work to social psychology. The curriculum would be somewhat similar, but social work focuses on applications and has a strong clinical practice component. In addition, the department would be different.

A change score of "4" indicated a clearly different curriculum, but one that would require similar preparation. Medicine and nursing are examples. Preparation for either one requires many of the same courses, but there is quite a difference whether one attends medical or nursing school, and a change from one to another would probably be regarded as a distinct change in field by someone studying talent flow.

"Remotely related fields" were assigned a change score of "5." Someone who intends to study mathematics but subsequently enrolls in education probably intends to be a math teacher. Nevertheless, the education curriculum would be quite different from the graduate mathematics curriculum. A trace of similarity or connection between the intended and the actual field of study warranted a "5."

Finally, a "6" was assigned to those few examinees whose changes seemed entirely unrelated. Examples were international relations to computer science, anthropology to education, electrical engineering to dentistry, and aeronautical engineering to business.

Not all combinations of fields had to be coded because not all possible changes were made in actuality. Assignments of change scores were reviewed and discussed with other researchers as well as with experts in some of the fields in question. A rigorous review with multiple raters and computation of interrater reliabilities seemed unwarranted considering how few examinees scored higher than a "2." For practical purposes, the categories could be collapsed into a 2- or 3-point scale. Nevertheless, once the coding was done, reviewed, and revised, it was retained for the correlational analyses. Appendix C shows the change scores that were assigned to each combination of fields.